

CHOOSING REAL ESTATE MICROCOMPUTER SOFTWARE

by John Oharenko and Ruth Spiegel

Only 20 years ago, computers consisted of large rooms filled with vacuum tubes, wires, switches, gauges and other devices frequently costing millions of dollars. Today's computers are much more compact, resembling typewriters and desk cabinets, and costing anywhere from \$200 to several million dollars depending on operating capabilities, speed, sophistication, storage capacity and other variables.

In recent years a new class of business computers has emerged — the microcomputer or personal computer. These computers are becoming extremely popular among small business users because they are economical and can be used to perform wordprocessing, accounting, financial planning and budgeting, and other functions traditionally available only from the mainframe and miniframe computers which only large companies could afford.

A typical microcomputer business system consists of a desktop computer, a monitor which is equivalent to a TV set, a correspondence or draft quality printer, a 5¼ inch or 8 inch magnetic floppy disk drive set, and additional peripheral equipment. Some systems are small enough to fit in a suitcase.

While they can be used by almost all small businesses, microcomputers are especially useful for real estate financial analysis because their ownership/leasing and operating costs are greatly outweighed by performance capabilities. For example, a popular microcomputer system with all the hardware equipment necessary for real estate financial analysis has a retail cost in the range of

\$3,000 to \$12,000, depending on brand name, operating system, memory capacity, printer(s), monitor type, as well as a selection of other options. Software costs generally range from \$200 to \$5,000 per program. Electricity rates, service contracts, consulting fees and employee training are the only significant operating costs.

Total costs are minimal in comparison to the cost of making a financial calculation error on an important real estate deal which could result in loss of client confidence and goodwill. Thus, the importance of a microcomputer's role as an analysis tool is obvious.

A variety of real estate financial analysis applications are performed by the microcomputer. The most common applications include: cash flow analysis, mortgage calculations and tax planning. In general, three categories of software are available for these applications: 1) prepackaged real estate software programs; 2) custom designed real estate software programs; and 3) computer time-sharing services that offer real estate programs on a cost-per-unit basis such as computing time and minimum periodic user fees.

Prepackaged Real Estate Software

Prepackaged microcomputer real estate software includes a vast selection of programs that are typically designed and sponsored by real estate professionals including brokers, mortgage bankers, syndicators, academicians, accountants and lawyers. The commercially available software programs cover a wide variety of applications ranging from simple loan amortization schedules to sophisticated rent roll computations and multiple regression analysis for long-term financial planning.

Prepackaged real estate software programs usually cost from \$100 to \$3,000 per package. In comparison to custom designed software, these "canned" programs offer a structured format. As a result, the user simply follows the program instructions by entering the data according

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to a prescribed format. For example, an amortization table computation program would prompt the user to input each variable, then the table would be computed automatically.

In essence, the user is relying on the program for real estate financial analysis. In most cases, no programming experience is required since the authors have designed each program for a specialized use. The user, however, may not deviate from the program format and must become familiar with the operating instructions of each program in order to gain the maximum benefits offered from each program.



Relying on commercially available software programs has drawbacks as well as advantages. First of all, the user must understand basic real estate financing principles in order to judge the usefulness of various software packages. Otherwise, a qualified consultant needs to be hired for this task. Secondly, a large number of software programs are inadequate for many analysis purposes and/or are frequently poorly documented. As a rule the software program reflects the skills and talents of the people who developed it. In most cases software and its authors should be reviewed before purchase. Third, much of the lower priced, mass-market software lacks adequate customer support. Consequently, if any questions arise concerning software operation, the only source of information will usually be the operating manual. Fourthly, many real estate software programs lack flexibility, so the user is often limited to the financial structuring methods offered by the software vendors. In summary, as with any mass-marketed product, there is a wide variety of quality and price ranges in real estate financial software.

Custom Designed Software

In those cases where "canned" software can't meet the user's needs, the most suitable software may have to be

specially designed. Just like a tailored suit fits its wearer, specially designed software matches the exact needs of its user. As expected, this type of software is the most expensive and strong reliance is placed upon the programming team and the expertise of the real estate investment analyst or consultant. Often, development of a sophisticated program may consume weeks, months, and even years.

Furthermore, the development costs for such software are very high in relationship to the cost of the computer equipment itself. Unless these software costs can be spread out over high volume usage, custom designed software may be impractical and uneconomical. However, a popular and affordable alternative to this type of software is the electronic spreadsheet program.

Electronic spreadsheet programs (ESPs) are designed in the form of an accountant's worksheet. These electronic spreadsheets are composed of a matrix of "boxes," pegged into rows and columns and each having a unique coordinate. Furthermore, each box contains either an empty space, a numerical value, a formula, or nonnumeric characters such as title headings or symbols.

If a box contains a formula, this formula may refer to another value or formula that is located in a different box. Therefore, these boxes are interrelated when calculations are performed. If the spreadsheet format is saved, these calculations can be repeated as often as necessary. Consequently, almost no programming experience is required to create a spreadsheet; the only major requirement is a logical arrangement of formulas with corresponding data.

ESPs offer a wide selection of features. They are capable of performing simple as well as complex functions, ranging from summing and averaging values to analyzing discounted cash flows. In addition to these preprogrammed functions, spreadsheet programs can be tailored to perform specific mathematical and financial formulas in sequential order. Therefore, data and formulas can be easily modified for sensitivity analysis whereby one or more variables can be changed to answer "what if" questions regarding various assumptions and structural combinations.

Using popular financial analysis techniques, ESPs are adaptable for real estate investment analysis. The Payback Period, Net Present Value (NPV), and Internal Rate of Return (IRR) are the most frequently employed techniques for project profitability measurement. The Payback Period method consists of forecasting the future cash flows, calculating the cumulative annual cash flows, and matching the capital outlays against the year in which the cash flow equals or exceeds those outlays.

Using a more sophisticated technique that accounts for the time value of money, that is, Net Present Value, ESP software calculates the discounted cash flow value for each year's cash flows throughout the holding period, totals all these cash flows, and subtracts them from the initial cash outlay. If the cumulative present value cash flows exceed

the initial cost outlay, the project is further considered. Internal Rate of Return analysis is similar; however, the focal point of computation is the discount rate that equates the present value of the projected cash flows to the cash outlays (same as $NPV = 0$).

Most ESP software packages include preprogrammed NPV and IRR functions, resulting in simplified calculations. Other less frequently used cash flow analysis techniques such as Modified Internal Rate of Return and Financial Manager's Rate of Return can also be computed with ESP software.

Spreadsheet programs are often used for mortgage analysis. They compute amortization tables and yields for currently popular debt instruments such as variable rate, shared appreciation and wraparound mortgages. Changing variables such as the principal, interest rate, term or payment allows for virtually instant comparison of various mortgage instruments.

In addition to real estate financial analysis, ESPs are helpful for estate and tax planning which typically consists of real property as the major class of assets. Such planning differs for individuals, corporations, estates, and partnerships. Tax formulas and tables that apply to various ownership structures are suitable for spreadsheet program sensitivity analysis that can measure the variety of tax plan scenarios in the entire portfolio.

Although ESP software has a wide variety of real estate financial applications, it has some limitations. First, each spreadsheet must be individually designed, although commercially available real estate template overlay spreadsheets can be purchased. Secondly, depending on the computer model and internal memory capacity, a spreadsheet can easily absorb all of the available memory, limiting the usefulness for complex and lengthy calculations. Third, spreadsheet programs are impractical for real estate applications that use many conditional statements (GOTO, δ , =, ,"), such as rent roll calculations or other software where various options can be selected.

Timesharing Services

Timesharing services sell mainframe computer capabilities via telephone line transmission on a cost-per-unit basis to microcomputer users at a fraction of the cost of owning and operating a mainframe computer.

As opposed to prepackaged or custom designed software, these services typically offer the following benefits: 1) virtually unlimited off-line storage, not stored in the microcomputer; 2) accessibility to large data banks such as U.S. Census data; 3) customer training and support; 4) a complete library of software programs; 5) lower operating costs for efficient and infrequent users; and 6) convenience (hook-up to any telephone).

Subscribers usually don't have to worry about updating programs because these services regularly maintain and update the software library. Furthermore, a minimum of computer hardware is needed since the microcomputer simply acts like a "dummy" terminal — merely

transmitting, receiving, and printing results calculated by the timesharing computer. Microcomputer hardware obsolescence, however, is eliminated as long as the computer can efficiently communicate with the timesharing service network.

Timesharing services do have significant disadvantages. Subscribers who frequently use timesharing services during peak hours, usually regular business hours, must pay substantial fees. For example, a discounted cash flow analysis (IRR) computation could cost as much as \$20 to \$100 per run during a peak period. Many of the prepackaged and ESP software programs perform the same computation at a fraction of the cost. Thus, subscribers who plan the frequent use of repetitive computations such as mortgage amortization tables or discounted cash flow analysis would probably find it more economical to purchase prepackaged or ESP software programs.

Selecting A Software Package

Each software category offers advantages and disadvantages and software requirements depend on the specific needs of each user. Frequently, software packages have overlapping categories because they can be classified as prepackaged software, yet can be customized and/or may be available on a timesharing network.

Based upon the aforementioned categories, these tables

Prepackaged Real Estate Software	
Program Name/Vendor	Features
REAL ESTATE FINANCE PAC Palmer Berge Co. Computer Division 1200 Westlake Ave. N. Seattle, WA 98109	Real estate financial analysis including wraparound loans, graduated payment mortgages, and loan buydown analysis.
REAL ESTATE INVESTMENT PAC Palmer Berge Co. Computer Division 1200 Westlake Ave. N. Seattle, WA 98109	Real estate investment analysis including income and expense, cash flow, exchange recapture, and lease versus own analysis.
REALVAL Real Estate Evaluation Consultants P.O. Box 811 Bloomington, IN 47402	Real estate investment analysis including rental breakeven, sensitivity, tax, financial, and key ratio analysis.
RENT ROLLER Illinois Logic Co. 2500 West Iowa St. Chicago, IL 60622	Calculates projected lease schedules including income and expense stops, percent of sales and CPI escalators, and tenant lease summaries. Interchangeable with Visicalc Files using DIF format.
WORLDWIDE INVESTMENT SYSTEM Worldwide Institute of Valuation 366 Grand Ave. Oakland, CA 94610	Real estate cash flow analysis including sensitivity, ratio, and resale analysis.

list representative microcomputer software programs, the uses of each program, and its vendor.

Electronic Spreadsheet Programs (Custom Design)	
Program Name/Vendor	Features
SUPERCALC Sorcim Co. 405 Aldo Ave. Santa Clara, CA 95050	C/PM-based operating system software that is used for cash flow, mortgages, resale, and similar analyses.
T/MAKER Lifeboat Associates 1651 Third Ave. New York, NY 10026	Similar to above.
VISICALC Visicorp 592 Weddell Dr. Sunnyvale, CA 94086	Non-C/PM-based software that performs similar analysis as above mentioned programs.
REAL ESTATE ANALYST (Visicalc Templates) Colony Realty Co. 4243 Northlake Blvd. Palm Beach Gardens, FL 33410	Amortization schedules, depreciation, and investment analyses.
REAL ESTATE MODELS FOR THE EIGHTIES (Visicalc Templates) Commercial Software Systems, Inc. 7689 West Frost Dr. Littleton, CO 80123	Similar to above.

Conclusions

Microcomputers are becoming popular real estate investment analysis tools. Low cost, software availability, computing power, and portability are major reasons for their acceptance by the real estate finance community. However, they have limitations such as insufficient memory storage capacity and early obsolescence, and are unfamiliar to many real estate professionals.

Discounted cash flow analysis, mortgage amortization calculations, rent roll computations, and other forms of investment planning are the most frequent applications for microcomputer real estate financial analysis. Financial modeling using other flexible methods is also available, depending on software and hardware configuration.

Three types of software categories are used for real estate financial analysis: prepackaged, custom designed and timesharing service programs. Each software category has advantages and limitations. The selection of software depends on financial analysis needs, which vary within the real estate profession. Typically, the optimal software system includes a balanced combination of each type of program. Nevertheless, software and hardware should be matched with user's requirements and budget.

The talents, creativity and resourcefulness of the user are the most important variables for the successful use of a microcomputer. Computers are mindless instruments

Timesharing Services

Program Name/Vendor	Features
ACCUFLOW Tymshare Inc. 20705 Valley Green Dr. Cupertino, CA 95014	Cash flow and sensitivity analysis including depreciation schedules, ITCs, tax shelter computations, and discounted cash flow analysis.
CYBERNET-IFPS Cybernet Services Control Data Corp. HQW051, P.O. Box 0 Minneapolis, MN 55440	Financial planning and modeling including cash flow, lease versus buy, sensitivity and sales forecasting analysis.
EDUCARE NETWORK General Electric Info. Systems Co. 401 N. Washington St. Rockville, MD 20850	Cash flow, sensitivity, depreciation, mortgage and appraisal analysis.
EMPIRE Computer Sharing Serv. 3 Illinois Center 303 East Wacker Dr. Chicago, IL 60601	Corporate financial modeling program adaptable for real estate investment analysis featuring risk, target value and sensitivity analysis.
PROJECT CALL/370 Control Data Business 500 Putnam Ave. Greenwich, CT 06830	Real estate financial modeling including forecasting, data base management, statistical analysis, and tenant lease calculations.
LAS National CSS, Inc. 300 Westport Ave. Norwalk, CT 06851	Lease analysis system interactive program for simple and complex cash flows and leases.

which perform routine calculations, thereby providing more time for the analyst to make important real estate financing judgements. Computers are not a substitute for thinking, but are able to help with ultimate decisions.

Note:

Several real estate, electronic spreadsheet, and timesharing vendors exist and no attempt has been made to include every manufacturer.

Errors and omissions may appear in software presentation tables. Furthermore, many of the aforementioned vendors sell or manufacture several various types of real estate software packages. For further details, contact respective vendors.

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